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ABSTRACT

This paper summarizes four reports that comprised a study of ways in which technical and further education (TAFE) curriculum research for curriculum development can be speeded up in the data collection and analysis phases. The reports are "TAFE Curriculum Research: A Review of Group Process Methods" (T. Anderson, N. Jones); "The Facilitation of Curriculum Research Workshops in TAFE" (T. Anderson, N. Jones); "TAFE Curriculum Research: A Review of Group Process Methods. Descriptive Bibliography" (N. Jones et al.); and "TAFE Curriculum Research: A Review of Group Process Methods. Research Design" (N. Jones, T. Anderson). This paper provides descriptions of research methods reviewed, including exploratory research, the search conference method, Delphi, DACUM (Develop a Curriculum Method), critical incident technique, and force field analysis; summarizes the procedures entailed in management of group process curriculum research methods; lists the bibliographic sources used; and provides tables of contents for the four reports. (YLB)

TAFE NATIONAL CENTRE FOR
RESEARCH AND DEVELOPMENT

# TAFE CURRICULUM RESEARCH: A REVIEW OF GROUP PROCESS METHODS

## Summary



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## FOREWORD

A central problem facing TAFE in the 1980s is how to react quickly to the educational needs which arise from technological change. In 1983 the TAFE National Centre for Research and Development commissioned the authors, employed by NSW TAFE, to investigate curriculum research methods which held promise of speeding up the research phase of curriculum development. This is a summary of the four reports which comprised that study:

Anderson, T., & Jones, N. (1986). TAFE curriculum research: A review of group process methods.

Anderson, T., & Jones, N. (1986). The facilitation of curriculum research workshops in TAFE.

Jones, N., Anderson, T., Dawson, D., & Dowling, R. (1986). TAFE curriculum research: A review of group process methods. Descriptive bibliography.

Jones, N., & Anderson, T. (1986). TAFE curriculum research: A review of group process methods. Research design.

Copies of the reports can be obtained through the TAFE Clearinghouse, or from Nelson Wadsworth, 480 La Trobe street, Melbourne, Victoria, 3001.

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During the project we received considerable assistance from Tom Lyons, Tim MacDonald and Brian Brand, Western Australian Division of TAFE and Dr Alastair Crombie, Australian National University; Graham Foster, Victorian TAFE Board; Dr David Boud, Tertiary Education Research Centre, University of NSW; and Dr David Laird, University of New England. The NSW TAFE library staff, Jane Butterworth, Kate Burnham and Glenda Rowsell gave excellent and imaginative assistance in the conduct of the extensive literature searching for the project. Diane Dawson and later Rosemaree Dowling were instrumental in preparing the descriptive bibliography, published separately. Special thanks are also due to Laurie Field of the NSW Institute of Technical Adult Teacher Education, for bringing to our attention a number of important literature sources.

For the detailed comments and suggestions made by Dr Jenny Noesjirwan and Mr Kevin Parkinson, we express our thanks.

## ABSTRACT

This paper summarises four reports arising from a study of ways in which technical and further education curriculum research can be speeded up in the data collection and analysis phases. The study was commissioned by the TAFE National Centre for Research and Development, Adelaide, Australia. This paper provides descriptions of research methods reviewed, including exploratory research, the Search Conference Method, Delphi, DACUM, Critical Incident Technique, and Force Field Analysis; summarises the procedures entailed in management of group process curriculum research methods, lists the bibliographic sources used, and provides tables of contents for the four reports.

## CONTENTS

# 1. SUMMARY OF 'TAFE CURRICULUM RESEARCH METHODS: A REVIEW OF GROUP PROCESS METHODS'

## 1.1 ABSTRACT

This TAFE national project examines ways in which technical and further education curriculum research can be speeded up in the data collection and analysis phases. After discussing the need for preliminary investigation the study describes and analyses the following research procedures: exploratory (qualitative) research, the Search Conference Method, the DACUM (developing a curriculum) Method and derivatives of DACUM, the Nominal Group Technique, the Delphi Method, the Critical Incident Technique and Force Field Analysis. The methods were chosen after reviewing the literature and research methods used in TAFE.

Each method has been presented with the aim of providing intending users with sufficient information about the applications of the method, the data produced, how the method is used, and what are its pitfalls. Where possible, details of duration, cost, time and resources needed, have been included. Since these methods provide different perspectives on occupational analysis and therefore yield different types of data, some ways in which they can be used in combination are covered. A guide to the selection of the methods is provided.

The planning and implementation of curriculum group process methods is summarised in terms of the value orientations (overarching principles which guide choices between alternatives) and social rules (practical guides for action) which a group facilitator may adopt. A model of the general stages and steps in planning and conducting curriculum research workshops is included. Some issues which arise in the use of group process methods, such as strategies for 'conflict resolution', are highlighted.

Appendices cover some questionnaire methods for occupational analysis, a program for a short Search Conference, a brief description of an observational method for the study of skill masters, and some examples of DACUM charts.

The methods reviewed offer, in varying degrees, ways of shortening the curriculum research and data analysis process. The Search Conference, Delphi

and exploratory methods and, to a lesser extent, the Nominal Group Technique (NGT) hold promise for providing data to enable curriculum to be adapted to occupational structural change.

The NGT method appears to offer a useful approach for identifying the issues to be addressed in curriculum development and is a useful 'conflict resolution' procedure in certain situations.

The DACUM method, regarded as a quick and effective means for analysing occupational education needs at the psycho-motor level, holds promise, when linked to Delphi-type processes, of providing data in the cognitive domain (e.g. central educational concepts and the knowledge/skills needed to carry these concepts into effective task performance on the job). DACUM is also promising for detailing 'the here and now' of work functions but, in its traditional form, appears less effective, compared with the Search Conference, Delphi and exploratory research, in detecting change within occupations. DACUM, therefore, may need to be linked to other methods more sensitive to change when used as a curriculum research procedure on occupations undergoing structural change. Or it may need to include an additional segment which looks at trends within the occupation, possibly at the end of the DACUM session.

The Critical Incident Technique is seen as offering advantages in curriculum research for short courses, especially where urgent information is sought on the immediate, practical knowledge needed by students. It can also be used in assessing what 'critical' knowledge needs to be included in a course for assessing students' perceptions of the relevance of a program to their needs.

Force Field Analysis, since it enables a planning group to highlight the strengths and weaknesses of the forces affecting the implementation of change, appears best suited for use as an adjunct to other group process methods or in teacher workshops examining how occupational data can be translated into a curriculum.

## 1.2 QUESTIONS WHICH GUIDE SELECTION OF CURRICULUM RESEARCH METHODS

Table 1 sets out a number of issues and questions which guide selection of the methods covered by this study. Since each method has specific strengths

and weaknesses a summary of the main features of the methods is given in Section 1.4 and 1.5 prior to the detailed descriptions of the methods in Chapters 2 and 3, of the report 'TAFE curriculum research: a review of group process methods'.

Broadly, there are three sets of issues to be considered in selecting a research strategy. These concern content, methodology and the problems associated with introducing change. Content issues include:

1. The 'what' versus the 'how' of curriculum.

2. The relative emphasis which should be placed on identifying and learning skills as opposed to understanding the underlying concepts.

3. The relative emphasis which should be placed on identifying the future directions in which an industry is moving and emerging skill requirements, as opposed to analysing the 'here and now' of work in an industry to identify the skills and knowledge currently needed.

Methodological issues include:

1. The relative strengths of qualitative and quantitative research methods.

2. Sampling bias in the selection of key informants and workshop participants and the accuracy/reliability of data so obtained. This is equally an issue for all methods.

3. To what extent should educators as well as practitioners be involved in group process research methods?

4. Who controls the workshop output (the tension between researcher directed focus and participant directed focus).

Problems of introducing change are complex but two issues need to be highlighted: (A) the problem of providing a sound rationale for resource allocation in times of constraints on funding and (B) the problems of selecting a curriculum research and development process which will facilitate implementation of a curriculum. The latter issue is related to the so-called 'change agent' role of researchers and educators and opens up questions of what is an appropriate consultancy role relationship between researchers,

curriculum developers and curriculum implementers. (See Appendix B of the main report for an example of a consultancy model used for a fast-response curriculum development project in NSW TAFE.)

There are no easy resolutions to any of these issues. Content issues are taken up again in Chapter 4 of the main report when we discuss ways of blending research methods. Methodology issues are taken up in Chapter 6. Table 1 lists some key questions to be borne in mind when selecting research methods.

Table 1

Questions which guide selection of so-called 'fast-response' curriculum research methods

| Key Question | Curriculum Research Method |
|---|---|
| What is currently available that bears on curriculum development in the area? | Preliminary investigation |
| Do you need to describe the general field to be covered by a course and to identify the main elements in this field and their interrelationships, or to identify the major questions which curriculum research should address? | Exploratory research<br>Student profiling<br>Graduate student survey |
| Is the occupation undergoing substantial change? | Exploratory research<br>The Delphi Method<br>The Search Conference |
| Is the occupation relatively stable? | DACUM (or derivatives) |
| Is there group tension about the direction a course review should take? | Search Conference<br>Nominal Group Technique<br>(Possibly Force Field Analysis) |
| Is urgent information needed about the critical knowledge needed to perform specific work functions? | Critical Incident Technique |
| Does the data derived from any of the methods require validation or does the derived program require validation? | Questionnaire |

## 1.3 SUMMARY OF METHODS

### 1.3.1 Preliminary investigation

While preliminary research is, by nature exploratory, a distinction will be

made between preliminary work of the kind described here and the techniques of exploratory (qualitative) research described in Section 1.3.2.

All curriculum development projects in TAFE should include some form of preliminary investigation. Preliminary investigation is important because sufficient information may be obtained which simplifies the curriculum research project by showing where gaps exist in available knowledge. Moreover, suitable curriculum materials or even a syllabus may be turned up during the preliminary investigation phase, enabling research strategies such as pre-testing or other forms of validation to be used if confirmation of the relevance of the syllabus is needed.

The scope of preliminary work varies, of course, according to time and other constraints and may touch on some or all of the following areas, depending on the size and importance of the project.

(a) Investigation of the relevance to curriculum design and implementation of legal or regulatory requirements bearing on the occupation, including awards, codes of safe practice.

(b) Identification of the strengths and weaknesses in the existing educational program including: views of teachers; evaluation of outcomes for graduates of the program; and development of a profile of students which may include:

- Age, sex and educational background (including literacy and numeracy levels);
- Work experience;
- Work performed by the employer (broad categories);
- Work performed by the student:
  - specific processes performed
  - variety of work performed
  - extent of control, if any, over the nature of the work including its scope and depth
  - opportunity for making decisions about the tasks performed, i.e. scope for putting own ideas into practice

- students' views about shifts/trends within the occupation

- students' views about their career paths (e.g. stay 'on-tools', move into management or supervision, start own business)

- students' views about strengths and weaknesses in the education received, including problems being encountered with the order in which the course is traversed, addressing, if needed, questions of whether knowledge which students see as vital to be acquired early in the program is placed, in their view, too far into the course (see Critical Incident Technique)

- students' reasons for abandoning training

- examination of students' use of other educational sources.

(c) Collection of relevant data from: Australian Bureau of Statistics (ABS); Australian Standard Classification of Occupations (ASCO); Kompass (industry) directory; research reports, e.g. survey or review reports, workforce forecasts, occupational analyses, instruction/training manuals, curriculum documents, teacher reports, theses, records of advisory committee meetings.

(d) Identification of other curriculum work in the same or related fields, through literature searches including the TAFE National Clearinghouse publications: Initiatives in TAFE and Projects in Progress.

(e) Consideration of TAFE policy in relation to the area (e.g. equality of opportunity, occupational health and safety, etc). Sources of TAFE policy including policy and/or curriculum units within TAFE; policy statements by senior officers; CTEC Triennium reports (TAFEC); Committee of Enquiry reports from other government departments.

(f) Identification and consultation with key informants with a broad grasp or detailed knowledge of the area.

(g) Identification and consultation with decision-makers, client groups, audiences and stakeholders:

- within TAFE, such as schools, colleges, regions, teachers, students, senior officers, curriculum specialists;

- outside TAFE, such as employer and employee groups, other government departments, other educational providers, National Training Council, Industry Training Committees (see section on exploratory research).

(h) Identification of the key influences which are impinging on the occupational area (technological, economic, structural, social) especially changes which are likely to take effect during the next ten years (see sections on exploratory research, the Search Conference and the Delphi methods).

(i) Clarification of the areas which the research needs to cover and formulation of the research questions that the project will need to address (see section on exploratory research).

(j) Finalise (or make recommendations) about the project research design including data sources, data collection and analysis methods, critical project decision points, timetabling, staffing, resources and budget.

### 1.3.2 Exploratory (qualitative) research methods

Uses

To ascertain the broad thrust of a course offering in terms of scope, weights of emphasis to be given to segments of the program, depth of coverage within subjects and the more important aspects of subject sequencing. Properly handled, exploratory research is particularly useful when little information is available about an occupation and for obtaining an understanding of the structural complexities of an occupation as a prelude to identifying specific data needs for curriculum design.

**Data collection method**

The first step is to decide the research questions which are to be explored in interviews with key informants or in group discussion. Research questions are the broad questions which guide and focus the data collection and analysis phases. Examples are: 'In what ways is technological change altering the pattern of work skills in an occupation?' and 'What should be the central outcomes of the level of course being designed/reviewed?' The research questions should span the occupational/social context level (the wider forces which shape immediate knowledge needs or future needs which the educational

program would anticipate) and the individual level, so as to allow student needs to be related to an understanding of how work in the occupation is organised.

These research questions are usually divided into finer questions such as those used as probes in interviews. Since the aim of exploratory research is to explore, new questions are added as the process unfolds. The aim is to achieve a broad understanding of the occupation in terms of patterns or common themes but not to be deceived by initial appearances: to look for cracks or flaws in the emerging data and to follow up the questions that these pose.

### Sample

This depends on the scope of the project and the research questions being studied. The composition of the sample should be decided according to what the researchers need to know. For example, if the problem for curriculum design is the existence of several generations of technology (latest to the oldest) in use in an occupation, sampling cases must include instances of all generations of technology so that curriculum developers can know the breadth of education required.

### Advantages

The strength of exploratory research lies in its focus on the broader picture and on relating the educational needs at the individual level, to an understanding of occupational structure and change. The method's sensitivity to detecting change and the educational implications of change is of great advantage in preventing the problem of preparing a course which is obsolete by the time it is implemented.

### Disadvantages

The method requires flexibility in implementation and places a premium on the ability to synthesise (join data) and to extrapolate (look beyond data). Since the usual data collection is by interview, skill is required in conducting relatively open and free-ranging interviews and analysing responses for main themes while remaining alert for cracks or flaws in the emerging data which should be followed up as leads for further exploration.

**Cost and duration**

This is difficult to quantify since exploratory research should sample enough 'typical applications' of the work in the occupation, to provide an overall picture of how the occupation is organised (structured) and how it is changing. Deciding the minimum but adequate number of sample cases depends on the complexity of the occupation. Experience in TAFE applications on small, relatively homogeneous occupations suggests that the number of sample cases for focused interview and observation of work functions can be set at a minimum of 4-8. Once the broad picture has been obtained, the time required for curriculum development depends on the level of knowledge held by the syllabus writers.

### 1.3.3 The Delphi Technique

**Uses**

To obtain consensus from a group of 'experts' about the likely pattern of future events and to show where these experts disagree.

**Data collection method**

A series of questionnaires are sent to the 'expert' panel. Their responses are summarised and returned to the panel until patterns of agreement and disagreement become clear. Usually two or three rounds of questionnaire administration and analysis are sufficient. The method can also be used during a conference, e.g. where a questionnaire is written during the conference, administered, analysed and the pooled results returned to the group for rating or comment.

**Sample**

People who are in a position to comment on likely future trends. Thirty or more respondents.

**Advantages claimed**

The method accesses people without requiring them to meet in person, saving travel time and cost. It describes what key decision makers believe is technologically possible given particular constraints. It gives participants equal

opportunities to set down their perceptions of future events. It eliminates those psychological barriers to communication that can affect face-to-face group interaction. Participants have time for thinking and reflection before giving final judgments.

**Disadvantages**

The method assumes that the achievement of consensus within the panel, renders the data more believable and that the anonymous responses are more likely to be more objective than those generated through face-to-face group processes. The method may under- or over-estimate the likelihood of future developments within an industry because individual desires may become imposed on the forecasting process. Cross impact between specific forecasts can be difficult to assess.

**Applications**

The method is a promising means for assessing the directions which experts (or informed observers) believe an industry or social process (e.g. education) will take. Such directions could include what technological innovations from the range available are likely to be taken up, and in what time frame. Such information cannot, of course, be proven. However, the ability of Delphi to detect patterns of change likely in the short term (1 to 5 years) could reduce the problem of curriculum obsolescence. Delphi can also be used to scan the 'here and now' and identify consensus on what are the matters of concern and the most promising solutions.

Due to the dangers in forecasting, it would appear sound practice to join Delphi to a method which addresses the 'here and now' of work performed in an occupation. Because it accesses acknowledged experts, Delphi would work best in curriculum development for areas undergoing rapid change, when no one knows the shape of things to come. It would also be a useful component of a multiple method approach to rethinking a problem, e.g. the nature of trade training in the late 1980s, or examining approaches to distance education.

### 1.3.4 The DACUM method

**Uses**

To systematically develop a training program incorporating all aspects of the

curriculum (syllabus, assessment and teaching resources) based upon the compilation of a detailed task analysis (identification of job competencies) from the view of 'experts' via a structured group process.

**Data collection method**

Data on job competencies (duties, tasks, task elements) are collected from a panel of selected 'experts' in the occupational area being studied. In a structured workshop session managed by a skillful facilitator, the panel of experts is asked to define the occupational area in increasingly finer detail. Job categories are identified, followed by the major duties, component tasks and finally the skills, knowledge and attitudes related to the component tasks.

The data are provided by the experts and recorded by the facilitator on cards or butcher's paper until all job competencies have been analysed and are presented in a DACUM chart which becomes the basis for curriculum development.

**Sample**

The DACUM workshop traditionally operates with about 6-14 experts, i.e. people who are actually performing or supervising the job under study. Participants in the workshop should be representative of different skill strata within the occupational group.

**Advantages claimed**

The method appears to be quick and easy to manage. It is fairly structured and business-like and seems to have appeal to industry experts. It focuses on what the practitioner needs to be able to do on the job. The method is systematic and embraces the training model used extensively by the US Armed Forces. As such it readily suits the established philosophies of many curriculum researchers in TAFE in Australia and provides ordered data which are conducive to full scale curriculum development activities where an entire instructional system is required.

**Disadvantages**

It has been argued that an instructional systems approach to training is too narrow and too inflexible to research effectively the learning requirements of

adult students, because it focuses on an analysis of the job, rather than the learning styles of students. DACUM falls into this category.

Since the classical form of DACUM draws data solely from industry experts, it has been argued that a DACUM derived curriculum may be poorly implemented by teachers. That is to say, because teachers and students are not a part of the analysis and design process, they are not as committed to the curriculum when it is being implemented. To try to overcome this weakness, some TAFE versions of DACUM include teachers in the workshop process. Another weakness is that DACUM does not identify how an occupation is changing, though it is possible to add a concluding phase examining 'future trends'.

### Applications

The DACUM method appears to be particularly suitable to researching occupational needs in established vocational areas, i.e. for reviewing or revising existing TAFE programs. This is the case because the DACUM process begins with the identification of job classifications and from there systematically analyses the tasks involved in performance in the job.

It is further argued by some commentators that DACUM works best when applied to an occupational area which is comprised of a fairly homogeneous workforce. It would appear other more search-oriented methods could be more effective in exploring an occupational area or community need where no educational provision already exists.

## 1.3.5 The Search Conference Method

### Uses

The main uses of this method to date have been in organisational development, i.e. setting directions for improving organisational responsiveness to clients. In an educational context, the procedure, in essence, aims to assist people to make effective decisions now by clarifying what educational program they want to deliver in the future, taking account of likely future trends, and current constraints.

**Data collection method**

The Search Conference method is a flexible program containing a number of optional stages following the first step which is a 'FUTURE SCAN' of forces which are shaping the future environment. The 'FUTURE SCAN' which focuses on events, trends or forces which are perceived to be shaping the future, may include segments in which the conference considers the 'MOST DESIRABLE' and 'MOST PROBABLE' futures. The central principle underlying the Search Conference method is that plans made in response to a turbulent environment grow out of

(i) shared ideals or values about what are the important goals of planning for the future of the system in question

(ii) consideration of the constraints which must be taken into account in realistic planning.

Next, the workshop breaks into small groups which take the product of the 'FUTURE SCAN' and the 'MOST DESIRABLE' and the 'MOST PROBABLE' future. Or, depending on the situation, the whole group may select 6-10 changes they judge as important and spell out their likely effects taking into account 'CONSTRAINTS' and what to do about them. In some cases, the conference may examine the effects of changes or trends occurring inside the school or college ('INTERNAL SCAN') which are shaping its future. Another optional step, recommended in curriculum research applications, is the 'HISTORICAL RECONSTRUCTION' - a rewinding of the clock to 'see where we have come from?', in order to see what is good and should be preserved. The next step, consideration of present 'STRENGTHS AND WEAKNESSES' is to take stock of 'what we are good at' and 'what we are poor at?' By this time most of the key issues and options will have been identified and three steps remain:

(a) ISSUES AND PRIORITIES: Placing priorities on the issues identified during the conference.

(b) ACTION PLANNING: Selection of issues and the development of action plans by small groups.

(c) FINAL SESSION: Report-back sessions on the action plans which have been formulated and discussion of implementation procedures.

It is usual for the action groups to continue their work after the conference

ends and these groups may meet again or report to each other through a co-ordinator.

### Sample

The essential requirement is representation of major 'stakeholders' (interested parties). In curriculum research applications these would include representatives of the occupational grouping, teachers, students, curriculum developers, administrators and other key decision makers in relation to curriculum implementation. Sample size around 30 is ideal but Search Conferences can be run with as many as 150 people.

### Advantages claimed

The method provides 'future-oriented' data from which to design a curriculum. This is particularly important in design of vocational curricula for occupational areas undergoing change. The process tends to 'open the horizons' of participants ('FUTURE SCAN' leading to 'DESIRABLE FUTURES'), while keeping a firm footing in relation to implementation realities ('CONSTRAINTS'). Because of the representation of 'stakeholders' in the conference and their involvement in the research and action planning stages, the method is said to offer enhanced prospects of implementation of outcomes.

### Disadvantages

As yet we do not know how effective the method is in analysing the detail of competencies required to perform work in an occupational grouping.

To effectively apply the method the facilitator requires a good understanding of how to work with a group in an exploration of the wider contextual forces impinging upon an occupational grouping. Moreover, each Search Conference must be tailored to the particular situation. This requires a detailed understanding of the method.

### Applications

The ideal application is on an occupational grouping undergoing change. The method appears particularly suited to answering the broad questions in curriculum design such as course philosophy/rationale, aims, scope and course structure and can, it is said, be applied to trade and technician courses, as

well as short courses and organisational and personal development projects. The method is useful in circumstances where there are diverse views about what changes, if any, should take place in a curriculum.

### 1.3.6 Nominal Group Technique (NGT)

**Uses**

. To define a problem
. To generate solutions
. To establish priorities for action.

**Data collection method**

The Nominal Group Technique (NGT) requires a small group who meet in a 'brainstorming' session. The process begins with individuals silently writing ideas. These are then listed, one from each member in turn, on large sheets of paper. The ideas are 'collapsed' to remove overlaps, if needed. The list of items is ranked to establish group consensus as to priorities. Any additions are made, then the list is subjected to a final vote. The process is structured to limit group discussion in the idea-generating phase (silent writing of ideas) and the listing of these ideas (by limiting discussion to clarification only).

**Sample**

NGT appears to work best with groups of 8-10 people (several groups can be run concurrently). Participants can be those in a position to possess expert or up-to-date knowledge of the area and/or those who will be required to implement the (group) decision.

**Advantages claimed**

The method appears to be especially effective when the participants are strongly motivated to attempt the task (define the problem, or solve a known problem) and can tolerate the rules of the method, e.g. the rule of 'no discussion except for clarification'. The method claims to encourage equal participation and reduce the effects of one or two participants dominating the session. Moreover, because the method uses different procedures in the idea generation and idea evaluation phases, it is claimed that the method improves both the speed of generation of ideas and the quality of their

evaluation. The method also gives a numerical weighting to the output and so can show what facets of the problem are seen as central, or what solutions seem most promising.

**Disadvantages**

A key to the method is the framing of the NGT question which focuses the group's efforts. The NGT question can be specific, e.g. 'What subjects in this trade course should be reviewed?' or broad, e.g. 'What will the plastics worker of the 1980s be required to know?' But, unless the NGT question is appropriate, the process can be impaired. Some experience is needed, it appears, in formulating an NGT question which is effective, central to the issue being addressed and one that participants can relate to and understand. The level of abstraction (generality) involved in answering an NGT question may need to be specified. The method may be less suitable for occasions when sharing and evaluating information, in open discussion, are important in both generating solutions and setting the groundwork for smooth implementation. The method can generate frustration if applied in an insensitive, excessively rule-guided way to a group who really need to talk out a problem as a prelude to tackling it in a systematic manner.

### 1.3.7 Force Field Analysis

**Uses**

To generate strategies for implementing change situations by identifying the forces, both negative and positive, that are retarding change.

**Data collection method**

For each problem area or concern, the forces which might help in solving the problem are listed opposite the forces which might hinder the problem-solution process. The 'helping' and 'hindering' forces are then ranked from most to least important. After goals have been decided, action can be taken to either strengthen 'helping' forces or to weaken 'hindering' forces, or both.

**Advantages/disadvantages**

To our knowledge the technique has not been used in curriculum

development in TAFE. The method, in analysing change situations, has the advantages of offering a systematic approach to problem solution by teasing out the helping/hindering forces and identifying the points at which change should be applied. It therefore provides the strategy for change, e.g. strengthen specific helping forces, weaken specific hindering forces.

While not a curriculum research method in the formal sense, it does appear to offer a useful technique, if used following an NGT which identifies the problem areas, to tease apart the helping/hindering forces which bear on the identified problem. In this application, the method would have the advantage over a solution-generating form of NGT (as distinct from a problem-identifying form) of providing greater opportunities for the group to share and interact on perceptions and ideas, while retaining the 'hitch-hiking' (building on the ideas of others) advantages of NGT.

**Sample**

Groups of 4-8 persons.

**Applications**

Force Field Analysis is mainly a tool for providing directions in situations of complexity and resistance to change, e.g. a planning group wishing to foster the uptake of an innovation (technical or educational) might use the method to analyse implementation difficulties and adopt a strategy for change. Similarly, a group wishing to introduce a needed change might use the method to show where effort (leverage) might be applied to best effect.

### 1.3.8 Critical Incident Technique

**Uses**

To obtain a description of behaviours (completed action sequences) that are 'critical', in terms of either success or failure, to the performance of a task or critical gaps in knowledge, i.e. 'never do X when Y is happening'.

**Data collection method**

'Critical incidents' data can be collected by observers (e.g. researchers, supervisors) or the job holder. Data can include: what led up to the incident;

what actions were effective (or ineffective); perceived consequences of the action; and whether the consequences were within the control of the job holder. Collection procedures can include recall, observation, interviews or questionnaires.

**Sample**

Job holders.

**Sample size**

This depends on the problem but sample size can be reduced through stratification with fewer cases treated in greater detail.

**Advantages**

Since the data are observable behaviour, the technique is said to maximise objectivity while reducing subjective components of inference and interpretation. That is, the method draws out factual information of the 'how to/how not to' type, rather than the 'I think ...' type.

**Applications**

The technique is suitable for eliciting practical information about working with equipment, processes or people. It can be used to decide weights of emphasis in curriculum design and assessment decisions (what content is 'critical'). It has wide application in studying social skills needed in technical and further education.

The concept of 'critical incidents' (i.e. do's and dont's) can be used in other research methods, e.g. an NGT focused on a part of the work of an occupation. In student questionnaires, questions can be asked on (1) what aspects of the course were critical and positive in helping the student to perform key task sequences successfully, or (2) what parts of the course were irrelevant, or (3) what task were you required to do but were unprepared for? This information would, of course, need to be set into perspective by analysis of the student's background such as type of work performed by employer. Critical incidents collected across a pool of respondents could be the basis of an industry or student questionnaire.

**Duration and cost**

As yet, there are no case study applications in TAFE of this method. The method can be time consuming in data collection and analysis but appears worthwhile in terms of the practical relevance of the data to successful work performance.

## 2. SUMMARY OF 'THE FACILITATION OF CURRICULUM RESEARCH WORKSHOPS IN TAFE'

### 2.1 ABSTRACT

The processes entailed in facilitating or leading workshops or seminars for technical and further education curriculum research were examined by a modified Delphi process (questionnaire with feedback of results to participants) followed by a two-day workshop. Participants in the study were all experienced curriculum development specialists with knowledge of one or more of the following group process methods: Search Conference, Nominal Group Technique, DACUM (developing a curriculum) and derivatives of DACUM, the Critical Incident Technique and other group discussion techniques. The study is a companion to the examination of curriculum research methods by the same authors titled: 'TAFE Curriculum research: a review of group process methods'.

The facilitator role is analysed in terms of the value orientations (preferences) and social rules (guides for action) used by experienced TAFE facilitators/group leaders.

The results show that the facilitation/group leadership process requires complex interpersonal skills including the ability to set clear directions in a non-authoritarian manner, the ability to negotiate flexibly with group members, to face and resolve conflict and to motivate groups. The social rules and value orientations adopted by the facilitators studied are presented in detail. A model is presented of the general stages and steps through which curriculum research workshops progress. The model describes the value orientations and social rules which appear appropriate to each stage. A guide to the selection of group process methods for curriculum research in vocational education is included.

### 2.2 INTRODUCTION

Gathering qualitative data using curriculum research group process methods places the facilitator (or group leader) in a crucial position in relation to quality of the workshop output. It is therefore important to understand the facilitator role in the implementation of curriculum research group process methods. This section is a summary of a study of the facilitation of curriculum research workshops (Anderson and Jones, 1986) which examined how

a group of experienced TAFE curriculum developers planned and conducted group process methods for TAFE applications. These approaches were analysed in terms of the value orientations (preferences for things and actions) and social rules (guides for social behaviour) found to be effective in conducting successful curriculum research workshops in TAFE. The intending workshop user may wish to refer to the above-mentioned study for more detail about the complex skills required to conduct group process methods and for an explanation of the concepts of values and social rules. The main findings from that study are summarised below.

## 2.3 GENERAL STAGES IN CURRICULUM RESEARCH WORKSHOPS, AND VALUE ORIENTATIONS AND SOCIAL RULES APPROPRIATE TO EACH STAGE

Table 2 gives a general picture of a curriculum research workshop in terms of the main stages and steps, and the values and rules appropriate to each stage. It is not meant to relate to any particular curriculum research group process method but to highlight the general principles which should be addressed when designing and implementing curriculum research group process methods. The data on which the table were based were derived using a modified Delphi process (eliciting value orientations and social rules used in the conduct of curriculum workshops), followed by a two-day seminar exploring the complexities of the facilitator role. This method of leading into a workshop/seminar from a Delphi questionnaire had two advantages. First, it was an excellent 'warm-up' procedure for getting participants to think about the issues. Second, it gave each participant a look at what the other respondents saw as the important dimensions of the facilitator role.

An important point to bear in mind about the concept of social rules is that rules can be made, broken and renegotiated (Harre and Secord, 1972). Rules for making and breaking the rules of curriculum research and development workshops depend on the curriculum research methods being used and on the situation in which they are being applied, i.e. on the dynamics of the seminar itself. The philosophies of curriculum research methods differ but, in implementation, they share as common ground the skills of working with people in groups. The purpose of Table 2, therefore, is to show the common themes for working successfully with people in TAFE curriculum research workshops.

TABLE 2

STAGES AND STEPS IN CURRICULUM RESEARCH WORKSHOP PLANNING AND IMPLEMENTATION AND FACILITATORS' VALUE ORIENTATIONS AND SOCIAL RULES (SUMMARY)

| Stages and steps | Value orientations/action guides |
|---|---|
| **Stage 1: Planning** | |
| a) Research the issues | Know the background. Extract the the issues. Know the politics (the 'hidden agendas') affecting the project brief or likely to generate tension within the workshop. Understand the issues and problems which will affect implementation of the outcomes. |
| b) Get aims clear | Know what the sponsor wants. Know what you are going to do in the workshop. Be able to communicate this clearly. |
| c) Select or design workshop | (See Table 1 for questions which guide selection of various methods.) Know the method thoroughly. Be able to explain the method clearly and succinctly, including its 'ground rules'. Be prepared to be flexible in implementation. Know where you can bend the rules. Have contingency options. |
| d) Choose participants carefully | Get the 'right' people for the job, i.e. those in a position to know the area being studied. Choose participants with a good cross-section of knowledge/skills/awareness. |

| Stages and steps | Value orientations/action guides |
|---|---|
| e) Check out, set up venue | Aim for comfort, ease of interaction. Allow for socialising. |
| THE WORKSHOP | |
| **Stage 2: Orienting participants to the task and how it will be achieved (the method or process)** | |
| a) Welcome participants | Be friendly. Put people at ease. Begin building 'team spirit' and group cohesion. |
| b) Explain aims/task/ process/outcomes | Brief and orient participants to the planned process. Be clear and brief in explanations.<br><br>Help people to 'see' where they are going. |
| c) Check out participants' expectations | Listen carefully (throughout the workshop). Show that you are listening. Be open. State your expectations. Indicate what is able to be changed and what is not. Respond sensitively and perceptively to group and individual needs. Defuse tensions early. Set up a supportive atmosphere. Value all contributions equally. Do not be authoritarian. Avoid 'power-tripping'. Attend to any problems which participants have in regard to the process being used. Be prepared to shift tack (be flexibly responsive to group and individual needs). Use consensus to make decisions. |
| d) Participants acquire skills and knowledge about the process | Participants need to understand the process in which they are participating. Teach the required skills to the participants, if necessary. |

| Stages and steps | Value orientations/action guides |
|---|---|
| Stage 3: Build momentum | Attend to any problems which participants have in relation to the process being used. Let the group set the pace. Adjust the rules to the group. Make decisions by consensus. Do not value the task over people's needs. Maintain group cohesion. Lead by enthusiasm. Create a feeling of energy. Encourage participation. Be skilled in getting information from the group. Don't be intrusive but draw out silent members. Handle confrontations when they arise, sensitively and tactfully. Avoid emotional roadblocks to communication. |
| **Stage 4: The workshop in 'full-swing'** | |
| a) Plenary (whole group) sessions. | Be prepared to step aside if the group is working well, i.e has 'matured' to the task. Be prepared to change direction if the group becomes bogged down. Assert control where appropriate.<br><br>Attend to 'people needs'. Watch participants' comfort needs. Monitor time use. Schedule breaks when appropriate. Maintain group spirit and cohesion.<br><br>In the task work, the facilitator may be more demanding (not satisfied with partial solutions). Monitor time usage. |
| b) Small group sessions | After the group leaders are selected (preferably by the group), ensure that they and the group understand the task. |

| Stages and steps | Value orientations/action guides |
|---|---|
| **Stage 5: Concluding the workshop** | |
| a) Summarise | Summarise the workshop findings. |
| b) Achieve closure | Leave people with a sense of accomplishment. |
| c) Get commitment | Get commitment to outcomes (especially important with the Search Conference method). |
| **Stage 6: Follow-up** | Document and distribute reports of the workshop to participants. |

### 2.4 Common themes

These themes or value orientations are as follows:

#### A humanitarian focus

Although facilitators vary in the way they approach the task work of the seminar or workshop, they appear to be very person centered in their approach and attend closely to the personal needs of the workshop participants. It appears that when personal needs are fulfilled the task work flows with greater smoothness.

#### A task-oriented focus

A good facilitator achieves the task through making the aims, expectations and outcomes of the workshop clear, attending to individual and group needs sensitively, defusing and/or resolving conflict, watching the use of time and using control where appropriate.

#### An egalitarian focus and avoidance of 'power-tripping'

A good facilitator avoids 'power-tripping'. This is important because the facilitator possesses a degree of power which, unless handled sensitively, can have damaging effects. This power can be expressed in an autocratic,

overbearing manner used in an attempt to impress the group, or by adoption of a judgmental manner, or by showing insensitivity to the needs of participants and to what they are saying, or by driving the group too hard. These manifestations of 'power-tripping' create distance between the facilitator and the group. In attempting to avoid the negative expression of the power inherent in the role, facilitators adopt a humanist, caring approach, take care to negotiate the program and any changes with the group, and create the conditions that allow the group's energies to be released and the guidance to allow them to work effectively on the task. The egalitarian value adopted by facilitators is revealed in the rules of treating all participants as equals, valuing contributions equally, transmitting empathy, and making decisions by consensus.

A leadership focus

Facilitators appear to adopt the conception of a leader as one who sets clear directions, is flexibly responsive to group and individual needs, and is prepared to step aside when the workshop momentum is progressing well.

The ability to motivate groups

Facilitation requires an ability to generate, unlock, or inspire energy and interest within the group. The means for achieving this are by careful design of the workshop and selection of participants, the adoption of the values and rules embodied in the first two themes mentioned above, together with the transmission of enthusiasm about the worth of the project, transmission of positive expectations about the outcome, the display of faith in the group (e.g. through valuing group contributions), and a preparedness to adapt the process to the needs and interests of the group (by being sensitive and perceptive of group and individual needs).

Good facilitation requires excellent searching and communication skill

Searching skills include the ability to tease out the issues beforehand, including the politics and 'hidden agendas', the implementation realities and problems which bear upon curriculum development, and the ability to plan the workshop accordingly. Communication skills include the ability to listen carefully, particularly to the 'music behind the words', and to be clear and succinct.

These themes are taken up in Table 2 which shows the general stages and steps in the evolution of curriculum research workshops, and the values and social rules which appear appropriate to each stage. The skills listed below are important in striving for the ideal of a democratic leadership style.

## Skills required by facilitators/group leaders

This section summarises the skills required by the facilitator.

### Communication skills

The facilitator needs a high level of skill in communicating effectively. This requires, among other things, the ability to have an open mind and to listen carefully and actively. One way of doing this is to show that you are trying to follow what people are saying and that you value what they are saying. Maintain eye contact with the person who is speaking. Be sensitive to the verbal and non-verbal cues from the group.

Make the relevance of activities clear (in relation to the overall task). Avoid jargon and be precise. Have an open mind.

### Be tolerant, respectful and appreciative

Acknowledge the views expressed by participants even though they may not be personally acceptable. Be democratic. Value people for themselves. Avoid put-downs. Indicate that you respect participants' expertise. Be prepared to invest time in dealing with emotive issues so that they do not waste time later. Allow anyone to intervene at any time and acknowledge their concern, especially when you do not immediately act on it. Indicate your willingness to be interrupted.

### Be casual, relaxed, open and sincere

Be casual, relaxed, low-key and concerned to put group members at ease. Be open to others. Answer questions frankly. Say what you are doing and why you are doing it. Be seen as fair minded, i.e. to seek other views without passing judgment. Keep formality to a minimum. Be honest and sincere in interactions with group members (do not work behind a facade).

Transmit empathy

Try to see things from the other's perspective: to stand in the other's shoes. Try to blend in with the group (including style of dress). Do not be seen as aloof.

Be friendly and supportive

Be friendly, supportive, encouraging and warmly responsive to people. Be attentive.

Adopt a quiet, confident and non-defensive manner

Be quiet (i.e. not dominant or authoritarian), and project a confident manner and a sense of direction.

Be fair

Show appreciation of contributions. Be seen as fair minded.

Be flexible

Adjust the workshop process to the aims of the meeting and to the needs and pace of the group. Pick up important issues raised by the group. Allow regular time-out from the task work to examine the process (by which the task is being achieved) and correct any problems. Value the group's efforts in this regard. Since there may be conflict about the process itself, allow questioning of the process. Bend the rules or change the direction or style of operation according to the situation.

Be aware of the importance of the group's feelings and pick up group issues and suggestions

Feelings are an important source of information. Be sensitive to the mood or feeling within the group. Have the ability to handle feelings and confrontation well (e.g. by defusing potentially tense confrontations between participants which is important in overcoming emotional road-blocks to communication). Conflict can be an important indicator of an underlying problem, which may relate to how a task should be approached and, if addressed tactfully, can allow the group to become productive.

**Work toward shared understanding**

Work toward a clear, shared understanding with the group.

**Show faith in the group**

Trust people to take responsibility for their own learning. Communicate, verbally and non-verbally, positive messages about the outcome. Try to inspire interest and create a feeling of energy.

**Use control when appropriate**

Deal with dissent or resistance immediately it surfaces - listen especially carefully as there may be a misunderstanding which you can clear up or you may be doing something which needs to be put right immediately. Notice when tensions are starting to arise and defuse them, e.g. using humour to lighten the situation or by introducing a break in proceedings. Just acknowledging the tensions may sometimes be sufficient.

**Counter productive aspects of facilitation**

Several destructive aspects of facilitation are summarised below.

**Power-tripping**

Avoid being overbearing, dominating, too directive or autocratic. Do not sit in judgement on the views expressed, or indicate that alternative ways of going about the task are a poor choice or override individual participant's needs. Do not try to impress the group with knowledge. Do not push the group to your solutions or push the group too hard.

**Failure to provide clear direction**

Do not give confusing instructions, set unrealistic goals, allow aimless discussion or let the process continue unmonitored.

**Failure to motivate groups**

Do not allow participants to become restless or dissatisfied, allow reporting to go on and on, make comments that are negative or critical, engender group hostility or resistance to learning, or break the flow of the group.

**Lack of sensitivity, insight, care and consideration of people and their feelings**

Do not over-emphasise the task over people's needs. Don't leave people wondering what is wrong with themselves. Do not cut people down.

Conclusion

The foregoing shows that considerable skill is needed to effectively facilitate or lead a curriculum research workshop. This is especially the case when conflict situations arise, hence planning is important.

There is a need to learn more about how conflict can be handled not by choking it off or sweeping it away but recognising it, working with it, and trying to find solutions which relate to the goal of achieving quality and relevance in the curriculum. The facilitator must be able to recognise irreconcilable conflict for what it is and abandon or postpone further work until the conflict is resolved.

## 3. SUMMARY OF 'TAFE CURRICULUM RESEARCH: A REVIEW OF GROUP PROCESS METHODS. RESEARCH DESIGN'

### 3.1 ABSTRACT

This report sets out the research method and evaluation criteria used in the TAFE National Centre for Research and Development study of occupational research methods, conducted during 1983 and 1984. The methods studied were those seen to hold promise of speeding up the data collection and analysis phase of vocational curriculum research. This paper describes the concept of a 'resource bank of methodologies' which includes description of method, human and material resources required to use the method effectively, the suitability of the method to particular TAFE study areas, how to use the method, personal and professional skills required to use the method and constraints and pitfalls to be considered in using the method.

The criteria for selection and evaluation of case studies and their documentation is described. The evaluation criteria cover process criteria such as: duration, cost, expertise and manpower required, acceptability, capacity for blending with other methods and hardware requirements; and outcome criteria such as: relevance and utility of the method's results, quality of data collected, capacity of the method to forecast and to induce change, and transferability of results.

### 3.2 SUMMARY OF EVALUATION CRITERIA

The criteria that have been established for determining the worth of methodologies used in the various case studies are set out below in two classes: process criteria and outcome criteria. Process criteria concern the resources required (both human and material) to effectively use the method, and the processes adopted. Outcome criteria concern the nature, range, quality and utility of curriculum products developed as a result of the use of the method.

**a) Process Criteria:**

1. Duration of the method

- person hours needed to conduct the method, measured in units of time

. time lapse from start to finished product, measured in units of time.

2. Cost of using the method, measured in $.

3. Nature and level of expertise required to effectively use the method - expertise in research, curriculum development, teaching practice, interpersonal skills, and industry knowledge may all be appropriate. Separate measures of level of expertise for each of the factors listed above may need to be derived - these measures would be relative, and would be derived largely from subjective data provided by selected 'experts' in relation to each factor.

4. Number of personnel required to use the method, measured in number of full-time equivalent people ordinarily engaged in conducting the method.

5. Acceptability of the method to the TAFE environment - this criterion included such factors as: (a) degree of involvement of teachers and other stakeholders in the process, (b) degree of perceived departure of the method from the 'normal' methods used and 'known' in TAFE, and (c) suitability of the method to the extant political and economic environment in TAFE.

This criterion is necessarily descriptive and would, perhaps, best be conveyed by identifying the 'bottom-line' of each factor - e.g. it may be judged that a method is not acceptable unless it involves all the teachers of a certain rank and status in the data collection and/or analysis process.

6. Capacity of the method to fit into a modular curriculum research model - that is to say, one where the method is readily partitioned in phases or parts in order that its part may be selected and used in concert with parts of another method in combinations appropriate to the circumstances at hand.

7. Hardware requirements of method, in terms of data and computer facilities, accommodation and travel requirements.

**b) Outcome criteria**

1. Relevance of data collected and analysed using the method. This could be measured by identifying actual purposes to which data are put in the curriculum development process - relevance could be measured by a simple 3-point nominal scale, such as (1) relevant and necessary, (2) relevant and

sufficient, and (3) irrelevant.

2. Utility of data collected and analysed as a basis for curriculum development including curriculum delivery and implementation. This could be measured by a panel of expert curriculum developers making subjective judgements based on their experiences. The panel would assess the utility of data of different kinds, and which had been analysed in different ways, for the purposes of curriculum development, delivery and implementation.

3. Capacity of the method to forecast future needs. Due to the difficulty in determining a reliable means of forecasting and hence the difficulty in developing a measure for the success of such forecasting, the simple question that can be asked here is: 'Does the method provide any data at all about future needs?'

4. Capacity of the method to bring about the extent of change that is intended by the change agents (researchers, curriculum developers, administrators, etc). This criterion is descriptive and would depend upon the perceptions of 'experts' in the change process.

5. Transferability of the outcomes or presentation of findings of the method and its analysis. A method is necessarily more generally useful to all TAFE Authorities if the data which it presents and analyses are of a format which is consistent with the educational and administrative conventions and requirements of each TAFE Authority.

The evaluation dimension for this project would result in the selection of a number of case studies which could form the focus of the developmental dimension of the study. The case studies were to be selected by the research team, after consultation with the Project Advisory Committee on the basis of the evaluation criteria outlined above, and intuitively with a regard for the potential pay-off of the case study and the 'convenience' in negotiating the case study arrangements.

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## APPENDIX A: TABLES OF CONTENTS FOR MAIN REPORTS

A-1 Table of contents for the report: TAFE curriculum research: A review of group process methods

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CONTENTS

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A-2 Table of contents for the report: 'The facilitation of curriculum research workshops in TAFE'

CONTENTS

FIGURE

Figure 1. Conceptual schema for the analysis of facilitators' values, personal constructs and social rules

APPPENDICES

A: INSTRUCTIONS TO PARTICIPANTS
B: THE WORKSHOP EXAMINING THE FACILITATOR ROLE
C: FACILITATORS' VALUE ORIENTATIONS AND SOCIAL RULES IN DETAIL
D: THEORETICAL APPENDIX: THE CONCEPTS OF VALUES AND SOCIAL RULES
E: EXAMPLE OF 'PERSONAL CONSTRUCTS' DATA

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**A-3 Table of contents for the report - 'TAFE curriculum research: a review of group process methods. Research design**

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**CONTENTS**

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